

Section 2-4: Add and Subtract Variable Expressions

By the end of this lesson, you should be able to answer:

- How are variable expressions simplified?
- How are variable expressions evaluated?

Where you might see this in the real world:

- Sports, recycling, population, detective work

Define the following terms:

1. Terms
2. Like terms
3. Unlike terms
4. Simplify
5. Combining like terms

We need to be able to tell when terms are like and unlike, for we can only add and subtract like terms.

Example 1: Add two terms to the list that are like terms.

a. $4x$, $18x$, $-3.7x$

b. $17h^2$, $.98h^2$, $-15h^2$

Example 2: Simplify

a. $3\sqrt{x} + 8\sqrt{x}$

b. $2x + 4x^2 + (-3x) + (-10x^2)$

c. $7(x + y) + 4(x + y)$

*****Note***** Like terms are more than just a number with a single variable, like you may have thought. We are actually looking at the **variable parts**, which are what is around the variable. In Example 2 part a, we were looking at square roots of variables. In part c, it was a quantity of variables, that is $(x + y)$.

Example 3: Simplify

a. $.1m - 1.1m$

b. $7y + 4x - 7y - 3x$

c. $12x^2 + 3y - 6x^2 - 2y - 6x^2$

Here, we were looking at some problems that have more than one variable. Notice how we collected them by going alphabetically and then by the highest power. You always want to do this when working with variable expressions.

Of course, if we are working with variables, we might have to evaluate the expression as well. You will find that it will be easier if you simplify the expression first (Note: The root word of "simplify" is "simple").

Example 4: Evaluate each expression when $x = 2$ and $y = -3$.

a. $6x^2 + 3x^2$

b. $3x^2 - y - x^2$

c. $x^2 - 4y - 2x^2 + y$

Problem Set:

"USE WHAT TALENTS YOU POSSESS: THE WOODS WOULD BE VERY SILENT IF NO BIRDS SANG EXCEPT THOSE THAT SANG BEST." – HENRY VAN DYKE